



## Financial inclusion and women participation in gainful employment: an empirical analysis of Nigeria

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ARTICLE INFO	ABSTRACT
<p><i>Article history:</i> Received 22-Jan-20 Revised 4-Apr-20 Accepted 5-May-20</p> <p><i>Keywords:</i> ARDL; Financial inclusion; Women participation.</p>	<p>The paper examines the effect of financial inclusion on women participation in gainful employment in Nigeria for the period 1980 – 2018, employing the ARDL method. Both in the short run and long-run, the results indicated a positive relationship between financial inclusion and women's participation in gainful employment. Thus, the paper recommends that the government ensure that financial inclusion barriers are reduced or removed. Reducing or removing will increase women's participation in economic activities since financial inclusion measures are adjudged as convenient, safe, and prompt. Measures that will enhance private deposit and expansion of more commercial's banks branch in rural areas to improve women's access to financial services that discourage the use of informal financial services should be encouraged.</p> <p>****</p> <p><b><i>Inklusi keuangan dan partisipasi perempuan dalam pekerjaan yang menguntungkan: analisis empiris Nigeria.</i></b> Penelitian ini mengkaji pengaruh inklusi keuangan pada partisipasi perempuan dalam pekerjaan yang menguntungkan di Nigeria untuk periode 1980 - 2018, dengan menggunakan metode ARDL. Baik dalam jangka pendek maupun jangka panjang, hasilnya menunjukkan hubungan positif antara inklusi keuangan dan partisipasi perempuan dalam pekerjaan yang menguntungkan. Karenanya, makalah tersebut merekomendasikan agar pemerintah memastikan bahwa hambatan inklusi keuangan dikurangi atau dihilangkan. Mengurangi atau menghilangkan akan meningkatkan partisipasi perempuan dalam kegiatan ekonomi karena langkah-langkah inklusi keuangan dianggap nyaman, aman, dan cepat. Langkah-langkah yang akan meningkatkan simpanan swasta dan perluasan lebih banyak cabang bank komersial di daerah pedesaan untuk meningkatkan akses perempuan ke layanan keuangan yang menghalangi penggunaan layanan keuangan informal harus didorong.</p>

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## 1. Introduction

Financial inclusion is the right of every individual to have access to a full range of quality financial services in a timely, convenient, informed manner and at an affordable cost in full respect of his/her dignity (Fernando, 2016). the situation in which an individual owned an account with financial institutions and access to cheap, affordable, and effective financial services which allows individuals to store value in a safe place under government regulations (African Development Bank, 2013; Fanta & Mutsonziwa, 2016; Van de Walle, 2017). On the other hand, financial exclusion is the obstacles that hinder access to formal financial services such as the distance to financial institutions, costs of financial services, lack of widespread knowledge of available services, the integrity of regulatory and institutional infrastructure, etc. (Efobi, Beecroft, & Osabuohien, 2014).

Without women, society could hardly exist, and everything becomes nearly impossible for men to operate effectively. They are often left behind once it involves a higher cognitive process due to their low economic participation and involvement. Women are an integral part of society and contribute economically, socially, morally, and intellectually to the economy (Edegbe, 2018). Their participation is restricted to some extent due to the cultural belief that they should be concerned only with affairs in the home.

The study focuses on how financial inclusion may function as a cure-all in reducing gender difference by ascension women through financial services relating to access to a cheap, affordable, and effective financial product. The financial products are access to a bank, savings, payment, credit facility, insurance, etc. to extend their participation in the labor force or employment, investment, and family deciding. It's expected that once women are financially comprehensive, they incline to be additionally concerned in influencing the family's choice and participation. Sometimes, women are seen solely as house products, getting ready all domestic work, and taking part very little in family decision-making. It is assumed that they are involved in financial inclusion, like access to personal cash, active account, technology, and lots of others. They are going to have some level of autonomy, high dialogue power, freedom of quality, associated freelance as a result of an economic-financial set-up, facilitates the exchange of products and services, integrates them into the economy, and offers protection against economic shocks and not solely function a wife of the house but the employee of labor.

According to the World Bank (2018), the exclusion of women from potential economic activities may undermine an economy's growth. Records show that in 2011 72% of men have access to the fundamental account against 65% of women who have access to the financial account (Women, 2018). Similarly, a recent study of 18 countries worldwide states that 65% of men handle 80% of the loan and 75% of the deposit. On the other hand, women influence 80% of house shopping, 73% unhappy with banking services worldwide, 33% closely-held non-public business globally, and 68% closely-held tiny and medium business in developing economies with unmet credit needs (Women, 2018). Additionally, the worldwide index shows that the gap between men and women in developing economies is 9% (39% for men and 30% for women) (African Development Bank, 2013). Moreover, Ghuliani, Guevara, Sebastio, Diemel, Sharma, & Svarer (2018), South Asia, has an 18% gender gap of account possession. For India, 58% of Women-owned accounts. However, 35% are active. The gap between men and women that closely-held formal account in East Asia and Specific, Europe and Central Asia, Latin America and the Caribbean, Middle East, South Asia, and Sub-Sahara continent was 4%, 9%, 5%, 10%, 18%, and 9% respectively (Holloway, Niazi, & Rouse, 2017). The lingering issue behind the low usage of financial services is cultural, social, and market barriers.

In Africa, while statistics show that the females' population is increasing at the increasing rate, their economic participation level is decreasing, most importantly, the emerging democratic states. This has a reverse impact on the economy's prosperity, especially when they are part of the household decision making. According to [Van de Walle \(2017\)](#), the household financial gain contribution of men and women in Kenya is between 48% and 31.5%, respectively. In South Africa, 74% of men and 86% of women-owned bank account, suggesting that women are more financially included than men, but men use more accounts. Botswana and Switzerland shared an equivalent proportion in the gender gap between men and women 14% and Mauritius 11% that owned bank account ([Fanta & Mutsonziwa, 2016](#); [Holloway et al., 2017](#)) In Malawi, there is a 19% gap between men and women in the active account and 8% access to a bank account.

In contrast, Democratic Republic of Congo, Tanzania, Mozambique, Zambia, and Zimbabwe, the gaps between men and women that have access to a bank account are 2%, 8%, 9%, 8%, and 4% dimensional ([Holloway et al., 2017](#)). Correspondingly, Tanzania, Zambia, and Swaziland females make use of somebody else's account due to poverty or lack of cash. Other factors are a lack of awareness of the benefit of a bank account. How to apply for a bank account, many of their women live in remote areas far from a bank branch, prefer informal providers to banks, and cannot maintain a minimum balance ([Holloway et al., 2017](#)).

In Nigeria, the gap between people who have access to the financial institution in 2011 is 7% and rose to 20% in 2014 ([World Bank, 2018](#)). Similarly, [Central Bank of Nigeria \[CBN\], \(2016\)](#), 41.6% are said to be financially excluded, and 55.1% between 18 – 35 were women with financially excluded residing in rural areas. Furthermore, the financial inclusion strategy scheme established in 2016 by the Central Bank of Nigeria captured the variation between gender in Nigeria as mirrored within the Figure 1.

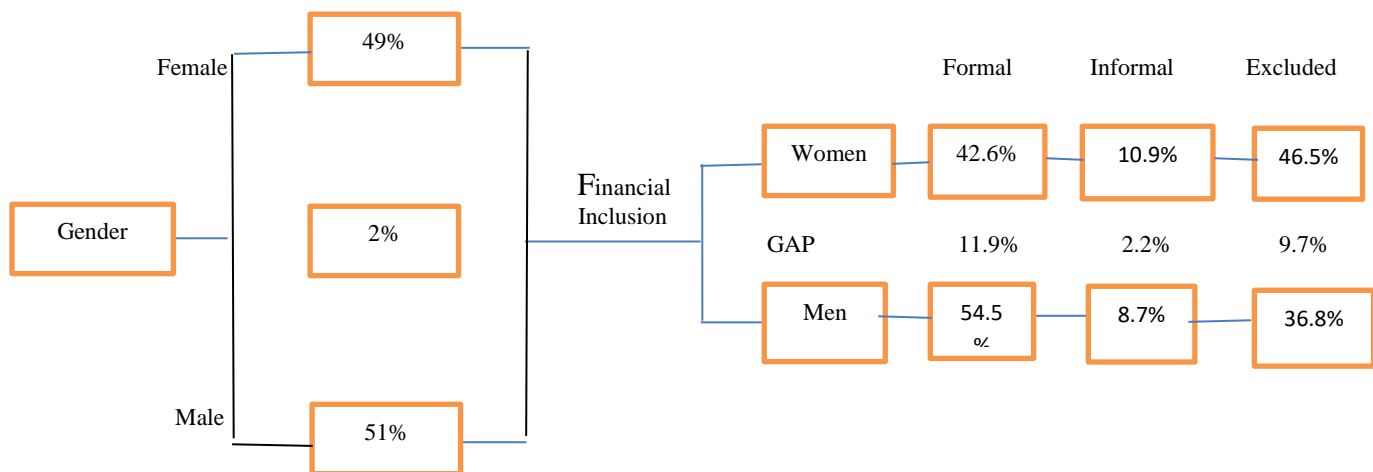


Figure 1. Trend of the gender gap in Nigeria  
Source: Adapted from Central Bank of Negeria

The above diagram shows the pertinent trend of the gender gap in Nigeria, ranging from formal access to the financial system, informal, and those excluded. It clearly shows that 11.9%, 2.2%, and 9.7% gaps between the men and women that have access to the formal financial system, informal and financially excluded, respectively. This situation is worrisomely and depicts serious development challenges, especially when compared to the population gap. The fundamental principles behind this distinction may be dissent cultural/religion, unemployment, increasing security challenges, limited access and eligibility, high rate of informality size, and financially illiterate ([Central Bank of Nigeria, 2018](#)).

Unequivocally, women empowerment and gender equality is an important artifact for economic progress. Several studies, including (Fanta & Mutsonziwa, 2016; Ghuliani, 2017; Holloway et al., 2017) have linked women empowering to sustainable development. Various studies have found that access to financial services not only increased savings, but also help improve women's investment, decision making, and enhance economic performance (Anwar, Uppun, Tri, & Reviani, 2016; Sakanko, Audu, Lawal, & Onimisi, 2018). However, these studies have not specifically look into the effect of financial inclusion on women's participation. Additionally, it is paramount to note that, considering the scanty nature of studies relating to financial inclusion and gender participation in Nigeria, the relationship's nature becomes opaque. The previous studies examine the relationship between financial inclusion and welfare improvement through poverty reduction and economic growth in Nigeria. Thus, this study investigated the relationship between financial inclusion and women participation in gainful employment in Nigeria, utilized applicable model and conduct all the vital tests and diagnostics (unit roots test, autocorrelation test, stability tests, etc.) to fill the identified gap.

Therefore, this study seeks to answer one principal question: Can Financial inclusion influence women's participation in Nigeria? Based on this argument, the study's objective is to examine the effect of financial inclusion on women participation in gainful employment in Nigeria.

The research is critical to the women, financial institutions, development finances as well as the policymakers. It is detected that the majority of the prevailing studies deepen on relationships between financial inclusion, poverty, economic growth, and development. Therefore, this study narrowed its scope to financial inclusion and women participation in gainful employment in Nigeria. Women are the utmost beneficiaries for this study because financial inclusion plays a significant role in their lives, particularly those who have access to formal financial services. This provides the sanctioning avenue for plenty of them to participate in financial inclusion programs in their various community.

This study's fundamental departure from previous rests that financial inclusion influences women's participation significant in economic activities. This argument is anchored on the Library feminist theory, Schumpeter theory of innovation, and Finance growth theory. The Library feminist theory founded by (Hooks, 1984), the (LFT) assumed equality of all beings as essential ingredients for self-interest-seeking agents. Gender difference is variations in opportunity and power (Jabir, 2015). Thus, differences in their achievements are associated with women's inability to realize their potential, which hinders them from acquiring the skill to compete on an equal basis with men. In essence, once women have ensured access to resources equal to their counterpart's gender differences dismayed.

Schumpeter's theory of innovation on 1982 advocated that the financial sector facilitates technological innovation (a requirement for productivity growth) through efficient resource mobilization and allocation. The theory emphasizes that a developed and functional financial industry is a condition guide to successful entrepreneurial engagement in technological innovation. Translating innovative thinking into real output has cost implications that may not be visible to the entrepreneurs. An efficient financial system can identify and fund entrepreneurs. This implies that increased access to finance promotes productivity, enhances participation. As more women are included in the formal financial sector, they become economically empowered and self-employed. Through active engagement in productive activities, they can lift themselves out of caged domestic duties and grow the economy.

The finance-growth theory of Stolbov (2013), recognizes the lack of access to finance as a critical factor responsible for persistent inequality and sluggish growth. Hence, access to a safe, easy and affordable source of finance is acknowledged as a pre-condition for quickening growth

and reducing disparities that create equal opportunities, enables economically and socially excluded people from integrating better into the economy and actively contributing to the economy.

### Conceptual Framework

Financial inclusion is viewed as a situation in which individuals can access affordable, effective, efficient, and cheap. Financial products or systems are access to credit/loan, payment, owned account or savings, insurance, financial institutions, financial advice, mobile, Point of Service (POS), Automated Teller Machine (ATM), and many others. The financial product is needed to store value in a safe place for exchanging transaction to reduce cost and financial risk under regulatory supervision (El-Zoghbi, 2018; Mndolwa, 2017)

Gender is the ratio between men and women in a country. This is a paramount issue in a developed and developing economy because gender plays an essential role in determining the productivity that sustains development. Gender inequality is a threat to human rights, which may cause a serious challenge globally. Gender participation is a situation in which women can participate or achieve economic success and influence financial decisions making. It covers the labor market, earns income, acquires the asset, holds savings, bargains in household decision making, and autonomy in financial decisions (Van de Walle, 2017).

Gender participation is defined as the active involvement of women in economic activities to excise their human rights and explore their sustainable development potential. The Figure 2 explains how financial inclusion can improve women's participation in gainful employment, leading to better economic performance.

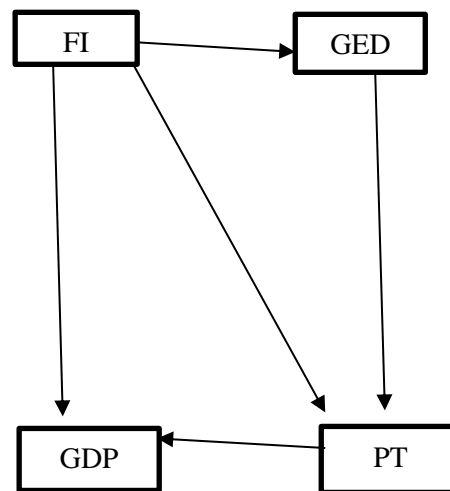


Figure 2. Working Mechanism of Financial Inclusion and Women Participation

The diagram shows how financial inclusion enhances women's participation through cheap, effective, and low-cost, accessible financial systems to women. This mechanism works by increasing women's inclusion through access to formal financial services. The financial access is access to credit, banks, payment systems increase their economic activity leading to a reduction in gender difference (GED) and enhance participation (PT), thus, increase economic prosperity and contribution of women to economic growth (GDP).

### Empirical Literature

Examining the effects of financial inclusion on poverty in Peru, employed panel data on variables including microloans, access to lending, and access to technology. The study revealed that financial inclusion does not have an alleviating effect on various indicators of poverty. Murari and Didwania (2010) examined the role of financial inclusion on poverty alleviation in India. The study employed a qualitative choice model on savings, affordable credits, financial advice, and payments



remittance and found that financial inclusion provides an entrepreneurial opportunity for household upliftment. Also, [Adekunle, \(2012\)](#) assessed the effects of financial inclusion on Nigeria's economic development. He was using a survey design method. They found that access to financial services through Microfinance institutions promotes employment generation, poverty reduction, and overall economic growth. However, their study's major flaw is that it provides only descriptions of the techniques used without testing for statistical significance. This study overcomes the flaw by employing an appropriate analysis method, such as an ARDL model, conducted unit root test, and diagnostic tests. In likes manner, [Fadun, \(2014\)](#) studied whether financial inclusion is a tool for poverty alleviation and income redistribution in Nigeria. In content analysis, it was shown that financial inclusions constitute an important tool for poverty alleviation. [Swamy \(2014\)](#) studied financial inclusion, gender dimension, and economic impact on India's poor households used cross-sectional and time-series data. The study revealed that, in general, women's participation had increased household income by 16.23% on average in India. He notices that income growth (CAGR) net of inflation effect was 8.40% for women as against 3.97% for men, indicating that the gender was participating poor undoubtedly affects financial inclusion programs' outcomes. In contrast to [Jabir \(2015\)](#) found that financial inclusion reduces poverty in Ghana.

[Abdin \(2016\)](#), investigating the effects of financial development on poverty reduction in Bangladesh, employed OLS and GMM methods. It was found that financial development has a negative impact on poverty reductions. Similarly, [Sehrawat and Giri \(2018\)](#), employing the ARDL model and Granger causality, found a long-run relationship between financial development and poverty in India. [Anwar, Uppun, and Abdi Revian \(2016\)](#) examined the role of financial inclusion in Indonesia's poverty reduction. They were employing panel data on variables, including economic growth, investment, and geography. Found that inclusive financial lead to poverty reduction.

[Sanya and Olumide \(2017\)](#) examine the effects of financial inclusion on poverty alleviation in Ekiti state, Nigeria. They were employing descriptive statistics and multinomial logit models using commercial bank branches, cash centers, overdrafts, and special fund access. The results obtained showed that financial inclusion has a diminishing effect on poverty. [Okoye, Erin, Modebe, & others \(2017\)](#) examined whether financial inclusion alleviates poverty in Nigeria. Employed OLS techniques, the study used the loan to a rural area, loan to deposit ratio, and branch network as a proxy for financial inclusion. The results obtained indicated that financial inclusion had promoted poverty alleviations in Nigeria. Also, [Sakanko et al. \(2018\)](#) investigated the impact of Financial inclusion on poverty reduction in Minna. In logistic regression, the result revealed that formal ownership of an account, the presence of Financial advisers, teller points, and access to formal credit leads to an improvement in the welfare of people.

## 2. Research Method

This study employs annual time series data from 1980 – 2018 to examine the relationship between financial inclusion and women participation in gainful employment in Nigeria. Financial inclusion is measured by access to credit, several commercial banks, and deposits/savings. On the other hand, women's participation in gainful employment is proxy by female labor force participation age 15 and above). Poverty and economic growth are measured by the human development index and gross domestic product). Information on these variables was sourced from the Central Bank of Nigeria (CBN) 's Annual Statistical Bulletin (ASB), and the World Bank Development Indicators (WDI).

The empirical model to be estimated is expressed as follows:

$$FPL = f(FIC) \dots\dots\dots (1)$$

where FPL = Women participation in labour and FIC = vector of financial inclusion

Financial inclusion includes DSS, ASC, and NCB. Hence, equation one can be rewritten as:

$$FPL = f(DSS, ASC, NCB, POV, GDP) \dots\dots\dots (2)$$

Equation 2 shows the functional relationship between the dependent variable (female labor participation) and the independent variables (DSS, ASC, NCB, POV, and GDP). Thus, the econometrics relationship is specified in equation three:

$$FPL_t = a_0 + \delta_1 DSS_t + \delta_2 ASC_t + \delta_3 NCB_t + \delta_4 POV_t + \delta_5 GDP_t + \mu_t \dots\dots\dots (3)$$

Where FPL = female participation in labour force, DSS = deposits/savings, ASC = access to credit, NCB = number of commercial banks, POV = poverty, GDP = gross domestic product Growth rate, and  $\mu_t$  = error term.

### 3. Result and Discussion

#### Result

The ADF test of unit root, bound test, diagnostic test, and Autoregressive Distributive Lag model is presented and discussed. The stationarity of the variables is conducted using the ADF unit root test. The null hypothesis, the variable has a unit root, against an alternative.

Table 1. ADF Test of unit root

Variables	ADF-Statistic	Order of integration
FPL	-3.560523 (0.0117)	Level
NCB	-4.873903 (0.0003)	First difference
DSS	-3.323188 (0.0237)	First difference
ASC	-5.495116 (0.0001)	First difference
POV	-6.114477 (0.0000)	First difference
GDP	-4.976993 (0.0002)	Level

Source: Authors computation (2019)

The above Table 1 shows the ADF- statistics test of a unit root. Values in parentheses are the probability value for each variable, respectively. FPL and GDP are stationary at a level. Simultaneously, NCB, DSS, ASC, and POV are stationary at first different at a 5% significance level, thereby suggesting that the series are integrated I(0) and I(1). Therefore, the appropriate procedure to follow is an ARDL co-integration method of estimation. This will determine whether a long-run relationship exists between women's participation in the labor force and financial inclusion.

Table 2 shows if the long-run relationship exists between financial inclusion and female participation in the labor force. If the f-statistics value is higher than the upper bound, we conclude that a long-run relationship exists.

Table 2. Bound test or co-integration test

Level of significance	Bound I(0)	Bound I(1)	F-statistics
10%	2.26	3.35	4.768132
5%	2.62	3.79	

Source: Authors computation (2019)

Table 2 shows the co-integration result. The bound F-statistics is 4.768132, which is greater than both 10% and 5% upper critical bound (3.35) and (3.79). Therefore, we concluded that a long-run equilibrium relationship exists between women's participation in the labor force and financial inclusion within Nigeria's study period. The dimension taken on women's participation in the labor force in Nigeria is co-integrated with the identified determinants. This means that even though their relationship may be distorted in the short run, but equilibrium is attained in the long run. Therefore, the ARDL model for both the long run and short run is estimated in Tables 4 and 5.

Table 4. Short-run estimates

Variables	Coefficient	T-statistics	Prob.
C	9.158266	1.297052	0.2052
D(NCB(-1))	0.149114	2.623815	0.0341
D(DSS(-1))	0.812939	6.798343	0.0000
D(ASC(-1))	0.388712	13.94882	0.0000
D(POV(-1))	-0.219632	-2.474810	0.0587
D(GDP(-1))	1.289126	2.862912	0.0079
ECM(-1)	-0.603959	-2.408444	0.0229

Source: Authors computation (2019)

The above result is the short run estimation in Table 4. The result revealed in the short run, financial inclusion components positively and significantly determine gender participation in Nigeria, the number of commercial banks (NCB), Deposit/savings (DSS), and access to credit (ASC). Specifically, a one percent change in (NCB), (DSS), and (ASC) leads to an average of 0.15, 0.81, and 0.39 percent increase in women participation in the Labour force in Nigeria, respectively. This is consistent with the a priori expectation of this study and in line with the finding of (Swamy, 2014). Similarly, economic growth (GDP) has a positive, statistically significant effect on gender participation. One percent increase in GDP leads to an average of 1.29 percent increase in gender participation. Finally, poverty (POV) exerts a negative and significant effect on gender participation. A percent increase in POV results in an average of 0.22 percent diminishes in gender participation.

The error correction term's coefficient has the correct (negative) sign and less than one and statistically significant. This particular finding has three important implications. First, it confirms the presence of a stable or strong long-run relationship between women's participation in the Labour force and the determinants (DSS, ASC, NCB, POV, and GDP), as previously established by the bound test result in table 2. Secondly, the value (-0.60) implies that about 60% of the short run's disequilibrium from last year's financial inclusion shocks will be corrected within the current year. Lastly, the negative sign suggests a unidirectional causality in long, which runs from explanatory variables to women's participation in the labor force.

Table 5. Long-run Estimates

Variables	Coefficient	T-statistics	Prob.
C	121.1458	2.023979	0.0514
NCB	0.051981	6.792238	0.0001
DSS	0.023956	18.24524	0.0000
ASC	-0.089820	-4.587803	0.0024
POV	-0.160910	-3.608333	0.0023
GDP	0.073137	2.783415	0.0219

Source: Authors computation (2019)

The long-run equation in table 5 revealed that in the long run, women participation in the Labour force in Nigeria is influenced positively and significantly by financial inclusion components; (NCB), (DSS), on the contrary, (ASC) inversely related to women participation in Labour force.



Specifically, a one percent increase in NCB and DSS leads to 0.05 and 0.02 percent improvement in women participation in the Labour force in Nigeria. However, a one percent increase in credit access leads to a 0.09 percent decrease in women's participation in the Labour force. This is contrary to the prior expectation of this study. The negative effect of access to credit, in the long-run on women's participation in the Labour force, could be associated with an increase in interest rate, which discourages borrowing. This then limits the availability of funds, leading to a loss of income. Similarly, POV has a negative, statistically significant effect on women's participation in the Labour force. A one percent increase in POV reduction leads to an average of 0.16 percent decrease in gender participation. On the other hand, the (GDP) has a positive and significant effect on women's involvement in the Labour force. A percent increase in GDP leads to an average of 0.07 increases in women's participation in the Labour force.

Since the variables have a long-run relationship, diagnostic tests are conducted to determine whether the parameters estimated conform to the classical assumption. The classical assumption is autocorrelation, normality, and heteroscedasticity. And also, test for stability and correct specification of the model.

Thereupon ascertained the short-run and long-run ARDL model. To ensure the reliability and viability of all statistical inferences to be drawn for the study, classical assumptions, stability, and specification of the model were tested. The result of the test presented in Table 6 and 7.

Table 6. Test for the stability of the model

Test	Stability
CUSUM	Stable
CUSUMQ	Stable
Ramsey RESET	Correct specification (0.650)

Source: Authors computation (2019)

This test is very important, as the results of the estimated model have policy implications. On the model's parameters' stability over the sample period, the Cumulative Sum of Recursive Residuals (CUSUM) and Cumulative Sum of Recursive Residual squares (CUSUMQ) tests were conducted. It revealed that the models' estimated parameters are stable over the study or sample period as both the recursive residuals and its squares are contained within the 5% critical bounds. We accept the null hypothesis and conclude that the required significance level is not smaller than 5% (0.650). The functional form (Ramsey RESET) revealed that the model is well specified. Overall, the model is well fitted, stable, and good for policy recommendation. The results of the diagnostic tests reinforce this showed in Table 7.

Table 7. Diagnostics test

Assumption	Test	Value	Prob.
Normality test	Jarque-Bera	0.142925	0.931031
Serial correlation	Breusch-Godfrey	4.366281	0.7108
Heteroscedasticity	Breusch-Pagan	5.962126	0.4330

Source: Authors computation (2019)

The diagnostics results reported in Table 7 shows that the ARDL model employed passes the diagnostic tests, including serial correlation (Breusch-Godfrey & Durbin-Watson stat.), normality (Jarque-Bera), and heteroscedasticity (Breusch-pagan). By satisfying these underlines classical assumptions of regression analysis, it is concluded that the estimated parameters are best, linear and unbiased, and efficient, and implications can be drawn from the results of this study.

## Discussion of results

The result revealed that both in the short run and long-run financial inclusion components. The number of commercial banks (NCB), Deposit/savings (DSS), and access to credit (ASC) have a

positive and significant effect on gender participation in Nigeria except for access to credit in the long-run, has a decline effect on the gender participation. This implies that as numbers of commercial banks and savings increase, women's participation in gainful employment advanced. This is possible by having access to the financial system to advance credit, save their returns, seek financial advice, and access convenience and affordable ways of selling and buying goods and services with lesser financial risk and cost. In essence, financial inclusion through access to banks and savings leads to women having access to more funds hence proactive in gainful activities. Access to credit was discovered to have an appreciating effect on gender participation in the short run, however negative in the long run and both statistical significances. The implication is, in the long run, due to exponential interest charge on money borrowed, people are discouraged from taking a loan, which influences the cost of borrowing, savings return, and investments.

Moreover, interest rates give insight into the future economic activity of an individual. This explains the importance of developing an interest-free bank (Islamic bank). The household can have access to unlimited credit without an interest charge and payment system that is useful, sustainable, and delivered responsibly.

#### **4. Conclusions**

Over the years, there have been concerted efforts by various relevant organizations; local, international and non-governmental organization in modeling different financial innovation such as Financial inclusion Strategic scheme, Financial inclusion insights, Micro, small, and medium enterprise development fund, micro-finance banks, among others financial development policy and program to address the problem of financial inclusion through provisions of access to the cheap, affordable and effective financial product under government regulations, yet women participation in the labor force is on decline state. This study employed ARDL to examining the effects of financial inclusion on women participation in the labor force in Nigeria within the period of 1980 – 2018. The result obtained revealed a long-run relationship between financial inclusion and women's participation in the labor force. Changes in financial inclusion have an appreciating effect on women's participation in the labor force both in Nigeria's short and long run. This demonstrates that improving financial inclusion leads to more women participation in the labor force in Nigeria. This can be achieved through the development of the financial system. Based on this, the study recommended as follows:

The government should ensure that the barriers to financial inclusion are reduced or removed. This will increase women's participation in economic activities since financial inclusion measures are adjudged as convenient, safe, and prompt. Secondly, measures that will enhance private deposits in commercial banks should be encouraged and sustained. This is because it was found that deposit and savings engender women participation in gainful employment, possible part of such funds may be made available for business activities through loans. Thirdly, the number of commercial banks was found to appreciate women's participation in gainful employment in Nigeria through its accessibility. Therefore, apex banks should encourage the expansion of more commercial bank branches in a rural area to enhance women's access to financial services, which discouraged the use of informal financial services.

#### **5. Acknowledgment**

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## Appendix

### Diagnostics

#### Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

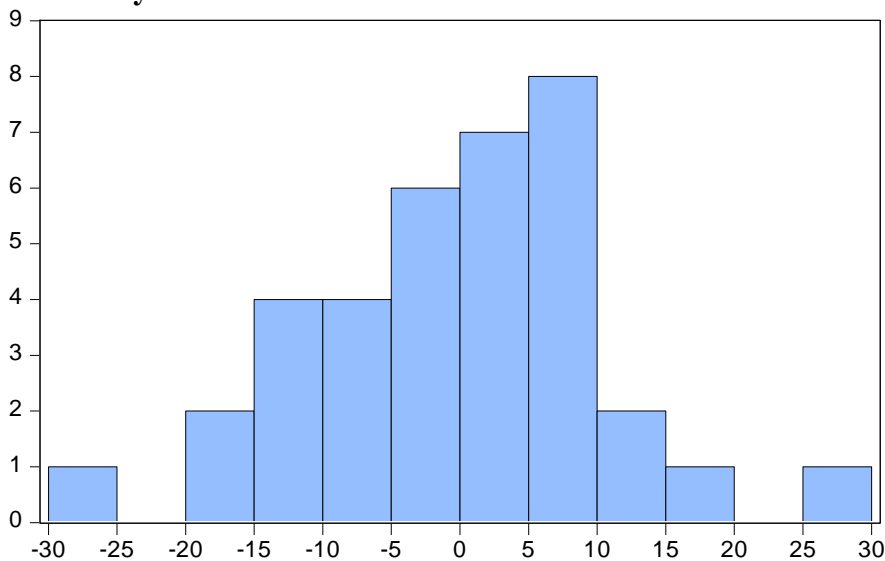
F-statistic	4.366281	Prob. F(1,27)	0.7501
Obs*R-squared	0.137513	Prob. Chi-Square(1)	0.7108

#### Heteroscedasticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	5.962126	Prob. F(7,28)	0.7883
Obs*R-squared	21.54525	Prob. Chi-Square(7)	0.4330
Scaled explained SS	14.67209	Prob. Chi-Square(7)	0.0404

#### Normality Test



Series: Residuals  
Sample 1983 2018  
Observations 36

Mean -2.12e-15  
Median 1.423511  
Maximum 25.97748  
Minimum -25.26587  
Std. Dev. 10.45562  
Skewness -0.089533  
Kurtosis 3.251434

Jarque-Bera 0.142925  
Probability 0.931031

#### Ramsey RESET

Ramsey RESET Test

Equation: UNTITLED

Specification: FPL C FPL(-1) D(LOG(DSS)) D(POV) GDP(-1) D(ASC(-1))  
D(NCB(-1)) ECT

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.319851	27	0.8721
F-statistic	0.830082	(1, 27)	0.5642
Likelihood ratio	25.81023	1	0.0645



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